

# Borough of Thetford

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ANNUAL REPORT  
of the  
MEDICAL OFFICER OF HEALTH  
together with the  
REPORT OF THE  
PUBLIC HEALTH INSPECTOR  
FOR THE YEAR  
1963



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## STAFF

Medical Officer of Health:

A. Afnan, M. D. , D. L. O. , D. P. H. , L. A. H.

Public Health Inspector:

R. C. R. Robinson, M. A. P. H. I. , A. R. S. H.



Municipal Offices,  
THETFORD,  
Norfolk.

Mr. Chairman, Ladies and Gentlemen,

I have the honour to present to you my first report on the health services of the Borough for the year ending 31st. December, 1963. Dr. A.S. Dunn was the Medical Officer of Health until his resignation in May this year. My duties as Medical Officer of Health commenced at the beginning of August, 1964.

## INTRODUCTION

The population of the Borough in 1963 as estimated by the Registrar-General was 6,750. This is an increase of 12% on the last figure of 5,920. With the expansion of the town and industry the immigration to the district should continue to increase.

The adjusted birth rate is 24.0, higher than that of England and Wales (18.2), and the adjusted death rate is 8.8, which is lower than that of England and Wales (12.2). This high birth rate and low death rate is a most agreeable situation.

A scheme to provide an infant welfare centre to serve Thetford's new development is programmed for 1965-66. The centre will incorporate an office for the health visitor who will be in attendance between certain times each day. The building will provide infant welfare services, mothercraft classes, vaccination and immunisation sessions and other health and welfare facilities.

During the year, the welfare centres for infants were held twice monthly in two centres. Welfare foods were sold and distributed from the Local Health Office and from the infant welfare centres.

There were, however, 4 stillbirths and 5 deaths in the first week of life, 3 of these died from prematurity, one from congenital heart defect and the other from respiratory infection and hemorrhage.

In addition to the deaths in infancy, the deaths were most commonly attributed to diseases of the heart and blood vessels. It occurred in the age group of 65 and over. In most cases, it is part of a general wearing out process affecting other organs too. Deaths from cancer took second place.

There were no deaths from tuberculosis in 1963, but at the end of the year there were 2 more cases on the register.

100 cases of measles were notified, but apart from that, few cases of infectious diseases occurred.

Acceptance of immunisation against diphtheria, whooping cough and tetanus was slightly lower in 1963. Concentration on vaccination against polio had produced an excellent result as far as our children are concerned. Most of the vaccine used in 1963 was given by mouth and only 38 persons preferred to complete their course with the salk vaccine used for earlier doses. School children between 5 and 12 years of age are given a fourth dose to keep immunity at peak level.

During 1963, 207 primary smallpox vaccinations and 19 re-vaccinations were done

in the Health Area No. 6.

In this health area (Wayland Rural District, Swaffham Rural District, Swaffham Urban District and Thetford Municipal Borough), 564 schoolchildren had skin tuberculin tests, 36 of them were absent on the reading day. Of the 528 remaining, 65 of them were positive and did not need vaccination and 462 of them were vaccinated.

May I, in conclusion, express my gratitude to the Chairman and Members of the Health Committee for their interest and support during the year. I would also like to pay tribute to all members of my staff for their excellent service.

I have the honour to be,  
Your obedient Servant,

A. AFNAN.

Table 1 GENERAL STATISTICS

Area (in acres)	7,096
Estimated Resident Population	6,750
Rateable Value	£ 272,771
Sum produced by a Penny Rate	£ 1,200

Table 2 LIVE BIRTHS

	Males	Females	Total
Legitimate	88	72	160
Illegitimate	5	4	9
Totals	93	76	169

Live Birth Rate per 1,000 of estimated Resident Population: Crude 25.0  
Adjusted 24.0

Table 3 STILL BIRTHS

	Males	Females	Total
Legitimate	3	1	4
Illegitimate	-	-	-
Totals	3	1	4

Still Birth Rate per 1,000 total births: 23.1

Table 4 TOTAL BIRTHS

	Males	Females	Total
Live	93	76	169
Still	3	1	4
Totals	96	77	173

Table 5 INFANT DEATHS

(a) Infant Mortality (Deaths of Infants under 1 year)

	Males	Females	Total
Legitimate	4	1	5
Illegitimate	-	-	-
Totals	4	1	5

Infant Mortality Rates:

Total = 29.6 (per 1,000 live births)  
Legitimate = 31.2 (per 1,000 legitimate births)  
Illegitimate = Nil (per 1,000 illegitimate births)



(b) Neo-Natal Mortality (Deaths of Infants during first four weeks)

	Males	Females	Total
Legitimate	4	1	5
Illegitimate	-	-	-

Neo-Natal Mortality Rate (per 1, 000 live births ) = 29.6

(c) Early Neo-Natal Mortality (Deaths of Infants under 1 week)

	Males	Females	Total
Legitimate	3	1	4
Illegitimate	-	-	-

Early Neo-Natal Mortality Rate (per 1, 000 live births) = 23.7

(d) Perinatal Mortality (Still births and deaths under 1 week)

	Males	Females	Total
Legitimate	6	2	8
Illegitimate	-	-	-

Perinatal Mortality Rate (per 1, 000 total births) = 46.2

Table 6 ILLEGITIMATE BIRTHS

Males - 5      Females - 4      Total - 9      = 5.3% of Total Live Births.

Table 7 MATERNAL DEATHS (including abortion) = Nil.

Maternal Mortality Rate (per 1, 000 total births) = Nil.

Table 8 DEATHS (All Ages)

Males	Females	Total
35	47	82

Crude Death Rate (per 1, 000 of estimated Resident Population) = 12.15

Adjusted Death Rate (per 1, 000 of estimated Resident Population) = 8.86



Table 9      CAUSE OF DEATH OF INFANTS UNDER ONE YEAR

	Males	Females	Total
Other defined and ill-defined diseases	3	1	4
Congenital Malformations	1	-	1
Totals	4	1	5

Table 10      NOTIFICATIONS OF DEATH RECEIVED DURING THE YEAR  
(According to Age Groups)

	Males	Females	Total
Under 4 weeks	4	1	5
4 weeks and under 1 year	-	-	-
1 and under 5	-	-	-
5 " " 15	-	-	-
15 " " 25	-	-	-
25 " " 35	-	1	1
35 " " 45	1	-	1
45 " " 55	1	1	2
55 " " 65	4	4	8
65 " " 75	8	5	13
75 and over	17	35	52
Totals	35	47	82

Table 11

CAUSE OF TOTAL DEATHS (Registrar-General)

Cause	Males	Females	Total
1. Tuberculosis, respiratory.	-	-	-
2. Tuberculosis, other.	-	-	-
3. Syphilitic disease.	-	-	-
4. Diphtheria.	-	-	-
5. Whooping Cough.	-	-	-
6. Meningococcal infection.	-	-	-
7. Acute poliomyelitis.	-	-	-
8. Measles.	-	-	-
9. Other infective and parasitic diseases.	-	-	-
10. Malignant neoplasm, stomach.	1	1	2
11. Malignant neoplasm, lungs.bronchus.	1	1	2
12. Malignant neoplasm, breast.	-	2	2
13. Malignant neoplasm, uterus.	-	-	-
14. Other malignant and lymphatic neoplasms.	1	1	2
15. Leukemia, Aleukemia.	-	-	-
16. Diabetes.	-	-	-
17. Vascular lesions of nervous system.	5	16	21
18. Coronary disease, angina.	7	1	8
19. Hypertension with heart disease.	1	1	2
20. Other heart diseases.	6	15	21
21. Other circulatory diseases.	1	1	2
22. Influenza.	1	-	1
23. Pneumonia.	4	1	5
24. Bronchitis.	-	-	-
25. Other diseases of respiratory system.	1	-	1
26. Ulcer of stomach and duodenum.	-	-	-
27. Gastritis, enteritis and diarrhoea.	-	-	-
28. Nephritis and nephrosis.	-	-	-
29. Hyperplasia of prostate.	1	-	1
30. Pregnancy, childbirth and abortion.	-	-	-
31. Congenital malformations.	1	-	1
32. Other defined and ill-defined diseases.	3	5	8
33. Motor vehicle accidents.	-	-	-
34. All other accidents.	-	2	2
35. Suicide.	1	-	1
36. Homicide and operations of war.	-	-	-
Totals	35	47	82

Table 12 COMPARISON WITH PREVIOUS YEARS

	1963	1962	1961	1960	1959
Estimated Population	7, 096	5, 920	5, 470	5, 180	4, 910
Total Births	169	170	125	106,	88
Total Deaths	82	87	76	74	67
Birth Rate (Crude)	25.0	27.7	22.7	19.8	17.4
Death Rate (Crude)	12.15	14.7	13.9	14.2	13.6
Infant Deaths	5	4	1	0	2
Infant Mortality Rate	29.6	24.4	8.1	Nil	23.4
Stillbirths	4	6	1	4	1
Stillbirth Rate	23.1	35.3	8.0	37.6	11.45

Table 13a NOTIFICATION OF INFECTIOUS DISEASES (EXCLUDING TUBERCULOSIS)  
ACCORDING TO AGE GROUPS

	AGE GROUP										Total
	Under								Over	Age	
	1	1	2	3	4	5-9	10-14	15-24	25	unknown	
Scarlet Fever	-	-	-	-	1	4	-	-	-	-	5
Whooping Cough	1	3	1	1	2	3	-	-	-	-	11
Measles	7	10	14	8	12	44	1	2	-	2	100
Totals	8	13	15	9	15	51	1	2	-	2	116

Table 13b

		AGE GROUP					Total
		Under 5	5-14	15-44	45-64	Over 65	
						Age unknown	
Pneumonia	-	-	1	-	-	-	1
Acute Encephalitis (infective)	-	-	1	-	-	-	1
Food Poisoning	-	-	1	-	-	-	1
Puerperal Pyrexia	-	-	-	-	-	1	1
Totals	-	-	3	-	-	1	4

Table 14    TUBERCULOSIS REGISTER

Year	Respiratory			Other			Grand Total
	M	F	Total	M	F	Total	
1963	13	13	26	4	2	6	32
1962	13	11	24	4	2	6	30
1961	10	12	22	3	1	4	26
1960	8	8	16	3	1	4	20
1959	11	10	21	3	1	4	25

Table 15    TETANUS IMMUNISATION 1963 - Health Area 6

	AGE GROUP			
	0-4	5-15	16 and over	
Primary	597	43	150	790
Booster	90	122	50	262
Totals	687	165	200	1052



Table 16 SMALLPOX VACCINATION - Health Area 6

Age at date of Vaccination	1. NUMBER OF PERSONS VACCINATED (OR REVACCINATED DURING PERIOD)	
	Number vaccinated	Number revaccinated
0-3 months	48	-
3-6 months	17	-
6-9 months	17	-
9-12 months	17	-
1	70	-
2-4	20	1
3-14	18	18
15 or over	-	-
Total	207	19

Table 17 POLIOMYELITIS -Health Area 6

Number of persons who received			Total
Third dose of oral vaccine	Third injection of salk vaccine	Reinforcing dose of oral vaccine after two salk	
562	38	109	709

The number of persons in this County Health Area who have completed a three dose course is 15,183. There are some 39,000 people living in the Area. As the vaccination is on offer, with few exceptions, only to those under forty, it follows that a very high proportion of those eligible are protected. At the beginning of the year, 14,474 had had three doses, thus in the year 1963 another 709 completed the course.

Table 18 DIPHTHERIA IMMUNISATIONS - Health Area 6

Children born in years	Primary Injections	Booster Injections	Total
1963	238	-	238
1962	358	24	382
1961	61	52	113
1960	20	21	41
1959	4	14	18
1954 - 1958	19	150	169
1949 - 1953	2	17	19
Total	702	278	980

Table 19 WHOOPIING COUGH IMMUNISATION - Health Area 6

Year of birth	Number of children
1963	234
1962	283
1961	48
1960	12
1959	4
1954 - 1958	20
1949 - 1953	1
Total	602



## Infant Mortality

Deaths of infants in the first week are often due to similar causes as are stillbirths. Infant mortality has been a subject of extensive study, and the National Birthday Trust published this year is the result of investigations into such deaths. They include studies on income, nutrition, medical skill, the growth of public health and hygiene, differences in family size, housing conditions, class differences, mothers' education and maternal abilities, whether she works or not during pregnancy and what use she makes of ante-natal care and specialist medical services, and whether she has her baby at home or hospital. Each one of these factors may play a greater or lesser part in infant mortality.

Congenital causes of death now assume the greatest importance. There should be more research into the process of gestation and the reasons for underlying prematurity. It would appear that much could be done to avoid mortality among those vulnerable infants. Care and attention must be directed to the vulnerable infants, for example there is evidence that premature babies are not taken to welfare centres with any more regularity than other children, nor do their mothers seek extra medical advice. An early and regular pre-natal care and hospital confinement would considerably improve the pre-natal and neo-natal deaths.

The health services cannot by themselves achieve all that is possible in the reduction of infant mortality. What is also needed is that more use should be made of the available maternity services by expectant mothers. The type of education received by an individual plays an important part in shaping parental behaviour and attitude.

It is the responsibility of the family doctor to see that his patients receive proper ante-natal care and that satisfactory arrangements are made for the delivery, even when he does not himself, undertake either or both.

## Tuberculosis

I wish to refer to the continued flow of immigrants into this country, without screening for tuberculosis. In some Afro-Asian countries the incidence of tuberculosis is very high and there is the possibility of importing active cases in considerable numbers. These tuberculous migrants are a particular menace to their compatriots for they tend to live together in overcrowded conditions, ideal for the spread of infection. To require an x-ray of the chest on entry and six months afterwards a re-examination, is highly justifiable. Chest physicians have been pressing for government action on this particular problem for years with no results.

## Cancer

The recent medical discoveries have shown that cancer does not arise spontaneously from otherwise normal tissues, but is typified by early changes which, when detected, provide an opportunity for effective treatment.

Because of delay in consulting a doctor, there was a much longer gap than necessary between the actual and potential results of a curative procedure for cancer. Delay was natural, being the result of fear of what is regarded as a fatal disease. One way to eliminate this fear is by carefully conceived health education. Publicity must stress the preventive aspect of it and facilities for tests must be provided in Public Health Clinics and doctors' surgeries. The family doctor must play an active role and realise that the tests are not only diagnostic but preventive and people must be encouraged to overcome their reluctance to go to the doctor with symptoms which they think he might consider trifling.

### Small pox

In an earlier part of this report, reference was made to the laxity in the matter of the health of immigrants. The Ministry of Health's review of the smallpox incidents between December, 1961 and April, 1962, has recently been published and in it there are some lessons for the future.

Smallpox was epidemic in Karachi from November, 1961 to February, 1962. All governments are advised of epidemics by the World Health Organisation, yet until the first case appeared in Britain, there were, to quote the British Medical Journal, "no enhanced precautions other than casual checking of vaccination certificates". Indeed the regulations empowering medical officers at airports and seaports to demand production of an International Certificate of Vaccination came into operation only in August, 1963. If the traveller does not have such a certificate, he may be offered vaccination or required to give his address and future movements so that he can be kept under surveillance.

As the number of visitors, tourists and immigrants to this country is increasing every year and some of them are coming from countries where there are smallpox epidemics, my strong advice to parents is to vaccinate their children at an early age.



ANNUAL REPORT OF THE PUBLIC HEALTH INSPECTOR  
FOR THE YEAR 1963

Mr. Chairman, Ladies and Gentlemen,

I have pleasure in presenting my annual report for the year 1963 on the sanitary circumstances of the District.

It is difficult to give a fair representation of achievements in public health work, because one is working to a negative for much of the time. To express it in another way, there are few tangible points where it can be said "that this is the result of our labour." The number of cases of food poisoning prevented due to our work on food hygiene or the results on the community of efforts made to keep the air clean and to prevent industrial pollution - these things cannot be estimated.

The report, which is a statutory obligation, is compiled in accordance with the requirements of Ministry of Health Circular No. 1/64.

NEW LEGISLATION

The Offices, Shops and Railway Premises Act, 1963.

This Act lays down and applies standards to such premises for the health, safety and welfare of persons employed therein.

The Animal Boarding Establishments Act

This Act prohibited the keeping of animal boarding establishments except under Licences to be granted by the Local Authority. It laid down conditions for the safety and welfare of animals boarded out.

New Regulations, Orders and Circulars were issued relating to slaughter-houses, meat inspection, milk and dairies, radio active substances and Clean Air Act.

WATER SUPPLY

The public supply is derived from a deep well sunk into chalk situated to the north of the town along the Mundford Road and from two boreholes to the South on Barnham Cross Common. The water from both sources is chlorinated before it is fed to the supply mains. As a first stage for the extension of the Water Supply Undertaking to provide for the water requirements of a town of 20,000, the drilling of an experimental borehole was completed in July. This bore was drilled to a depth of 340 feet from ground level at which depth signs of clay were encountered. Test pumping over a period of fourteen days at a rate of 42,000 gallons per hour proved very satisfactory and the chemical and bacteriological examination reports describe the water to be of very good quality and very similar to the water obtained from the two sources at present in use.

With a total water storage capacity of 820,000 gallons feeding into the town mains, it was not found necessary to impose restrictions on the use of water during the year, despite the demands of domestic and industrial users and for the increasing requirements for building work etc., necessitated by the Council's Town Expansion Scheme. However, as a result of the unusually prolonged period of extreme cold during the early part of the year, a considerable number of domestic and other water consumers were without mains supply, due to



the fact that the services were frozen in the ground. Daily deliveries of water to some 200 properties were made, using a water cart and a large tank mounted on a lorry. Samples of this water were submitted for bacteriological examination and the results were all excellent. Approximately 175 frozen pipes were brought back into use by means of a portable generator and welding set - this service was provided free of charge. No principal mains were frozen.

From information supplied by the Water Engineer, approximately 418,000 gallons of water were pumped per day of which 130,000 gallons per day were used for industrial purposes, leaving 288,000 gallons per day for domestic use.

The average domestic consumption per head per day amounted to 41 gallons. On an estimated population of 7,000, trade consumption amounted to 18 gallons per head of population, giving a total overall consumption of 59 gallons per head per day.

Water samples were taken at intervals throughout the year and submitted to the Public Analyst and the Public Health Laboratory Service for Chemical and Bacteriological examination. Copies of the Chemical Analysis Reports are given as an appendix. The results of the samples sent for bacteriological examination were highly satisfactory and results are given at the end of this report.

Practically all houses within the district have a piped water supply either direct into the house or to within the curtilage of the house. Six occupied houses situated on the extreme boundaries of the district take their water from wells or bores and samples taken from these sources showed the water to be wholesome and fit for drinking purposes.

The water mains were extended as follows to provide a public supply to private development sites, Council Estates and the London County Council Residential and Industrial Estates:-

3 inch mains	-	144 yards
4 inch mains	-	1,158 yards
6 inch mains	-	2,196 yards

### BATHING STATION ON RIVER

Samples of water from the River Little Ouse were submitted to the Public Health Laboratory Service for the Bacteriological examination and samples were also taken by the Pollution Prevention Officer of the Great Ouse River Board during the bathing season, in order to detect any heavy pollution which could have occurred.

With the results of the examinations and analyses, together with frequent inspections of the river banks and investigations at possible sources of pollution upstream from the bathing station (i.e. Barnham sewage disposal works and various watercourses), it was considered that the river was "clean" and safe for bathing purposes.

### SEWERAGE AND SEWAGE DISPOSAL

New sewers were laid and a pumping station was constructed along the Brandon Road to take in the new private development site at Redcastle Furze. Work was also commenced on the extension of the sewage disposal works to deal with an expansion to 10,000 population. The Council's Consulting Engineers, later in the year, submitted a report setting out the further works necessary to deal with an expansion to 20,000 population and these proposals were forwarded to the Ministry.



There are now but few properties that are without flush sanitation and those houses with pail or earth closets are either affected by slum clearance or new road patterns or they are so isolated that there is no sewer available.

The position at December 1963 was as follows:-

Number of occupied properties with pail closets .. ..	47
Number of occupied properties with earth closets ..	6
Number of occupied properties with cesspools .. ..	41

### Conservancy

The weekly collection of soil, from premises with pail closets, has been carried out by Contract.

Earth closets and cesspools were emptied, as required, by contract and as a free service to the occupiers. The number emptied in this way was as follows:-

Cesspools .. .. .	20
Earth closets .. ..	4

### REFUSE COLLECTION AND DISPOSAL

The collection of refuse was carried out on a weekly basis and covered the whole district except for approximately six properties which, because of their extreme isolation from the collecting routes, cannot be accommodated. The collection was direct from the houses and, where possible, rear collections were made. The type of vehicle used was a Dennis Paxit Major II Refuse Collector of 22/30 cubic yard capacity, manned by a driver loader and three loaders.

Provision was made for the collection of Trade Refuse at a fixed quarterly charge which varied with the number of bins collected from each premises.

The disposal of refuse was by semi-controlled tipping at a disused pit outside the built-up area of the town. The refuse was put down by a tractor and blade as and when required.

Refuse tips, particularly those where only semi-controlled tipping is carried out, usually afford an excellent home for rats with good cover, warmth and a constant supply of food. Although, during the autumn and winter, vermin converged on the refuse pit from the surrounding countryside, they were very quickly killed off by the Rodent Operator with the use of a gas pump and cyanide powder. Such regular treatments were found to be so successful that the tip was kept almost completely rat free throughout the whole year.

### HOUSING

#### (i.) General

The number of dwellings, including Council houses, occupied in the District according to the Rate Book was 2,210 and the estimated population figure was 7,000. Based on these figures, the average number of persons per dwelling is 3.02.

277 new dwellings were erected during the year, 47 of which were built by private enterprise leaving 230 Council houses.

(ii) Unfit dwellings—Action under the Housing Acts.

A summary of action taken under the Housing Act is as follows:—

Demolition orders made	..	..	..	..	..	..	..	4
Houses Closed	..	..	..	..	..	..	..	4
Families displaced	..	..	..	..	..	..	..	16
Persons rehoused	..	..	..	..	..	..	..	45

In addition to the above, 24 houses found to be unfit were purchased for eventual demolition by the Council.

Two unfit dwellings in a row of terraced houses purchased by the Council for eventual demolition were allowed to be used as temporary offices and meeting places by two local organisations.

The occupants of a house found to be overcrowded were re-housed by the Council.

As a result of routine inspections and visits to investigate complaints from tenants, informal action was taken to remedy some defect or other at 75 houses.

(iii) Improvement Grants

For the third year running, I have to report that few owners took advantage of the facilities provided under the Housing Acts to improve their houses with the aid of a Grant, through the Council. It would appear that the grant aid facilities will only be widely used when the provision of baths, hot water supply, etc., etc., are written into the matters to be considered when deciding if a house is fit for human habitation i.e. the Standard of Fitness contained in the Housing Act, 1957.

The improvements covered by the "Standard Grant" were for the installation of baths, wash basins, hot and cold water supply, internal water closets and food stores. Six only applications were made and approved and the amount of grant aid paid to applicants during the year amounted to £746.10.2d.

The "Discretionary Grant" is made to help owners to modernise houses by carrying out more extensive works than are covered by the Standard Grant. Only if the house is brought up to a first class standard of repair is the grant payable. Two such applications were received and approved towards the end of the year, for which up to £690 will be payable when the works are completed. A sum of £120 was paid in respect of a Discretionary Grant which was approved in 1962 and completed in 1963.

(iv) Common Lodging Houses

There were no registered common lodging houses in the district.

DIRTY AND VERMINOUS PREMISES

Such dwellings known to be suspect in this respect have been kept under observation but, generally speaking, filthy premises cause very little concern nowadays. However, seven new cases of dirty premises were found during the year, five of these were cleaned up after service of informal notices and the remaining two cases, which affected Council houses, were cleaned up and re-decorated by the Council after the tenants had left. It was found necessary to disinfect all seven houses against fleas.



Three disinfestations were also carried out at one premise to destroy a cockroach infestation.

A number of complaints were received concerning the presence of large numbers of flies in the roof spaces of eighteen premises and these were dealt with by using insecticidal smoke generators.

### INFECTIOUS DISEASES

Investigations were made at 7 houses from which cases of scarlet fever and tuberculosis were notified. Disinfection of the house had been requested by the occupier where there had been a case of tuberculosis.

### MOVEABLE DWELLINGS - CARAVANS

Two site licences were granted under the Caravan Sites and Control of Development Act, 1960. One was for the renewal of a licence to station one caravan only on the site and the second was for a new licence authorising the use of a site for three caravans.

Again, I have to report that considerable trouble was encountered concerning the unauthorised parking of tents and caravans on common land around the town area. The car park on the Brandon Road junction with London Road proved to be a favourite site of a nomadic and persistent knife grinder.

Enquiries were received from various Clubs, Scouts and from private individuals for permission to camp on Two Mile Bottom Common - they thought this to be an ideal site where camping should be authorised and encouraged. This Common is particularly popular during the summer months as a picnic spot and, when a water supply is available from the new borehole nearby, proper facilities could be provided and the site, through which the river flows, could become a most pleasant lido.

## SANITARY INSPECTION OF THE AREA

The following table summarises the inspections made during the year by your Public Health Inspector:-

Description	Inspections	Informal notices	No. abated
Drainage of Premises	52	26	26
General Nuisances	114	55	51
Infectious Diseases	8	1 disinfection	-
Rats and Mice	See Section "Damage by Pests Act, 1949"		
Dangerous Structures	16	5	5
Verminous and filthy premises	22	5 7 disinfestations	5
Shops	63	6	6
Caravans and Tents	46	-	-
Smoke abatement	15	2	2
Housing Investigations (tenants requesting support for Council Houses)	13	-	-
Housing - Overcrowding	5	-	-
Housing - General	286	See Section "Housing"	
Factories	151	See Section "Factories"	
Bakehouses	12	-	-
Butchers Shops	36	-	-
Food Shops and Premises	225	14	12
Restaurants and Cafes	54	3	3
Fried Fish Shops	12	1	1
Ice-Cream Premises	38	-	-
Milk Stores	16	-	-
Market Stalls	163	12	12
Public Houses	25	-	-
Marine Store Dealers	10	-	-
Slaughterhouses	367	8	8

## PREVENTION OF DAMAGE BY PESTS ACT, 1949

The above Act states that "It will be the duty of every Local Authority to take such steps as may be necessary to secure as far as practicable that their district is kept from rats and mice".

The Council employs one man on a part-time basis for the destruction of rats and mice. He has also been trained to carry out disinfection and disinfestation work when necessary and is also employed for the destruction of wasps nests.

The Rodent Operator, who is fully trained, has carried out his duties in a very satisfactory manner but, although he has visited every property within the Borough at least once during the year and dealt with complaints, he could have been more fully employed carrying out surveys of farms, land, building, etc., to exercise the proper control required under the Act. With the growth of the Borough under the expansion Scheme, the extended housing and industrial sites, consideration will have to be given to providing a full time operator to cover the Area systematically, including regular test baiting of sewers to prevent the possibility of the spread of disease by rodents.

During the week commencing 3rd. February, 1963, Norfolk organised a "Winter Campaign against the Rat" and the Borough played its part in the County wide drive against rodents. Letters were sent to the occupiers of land in the district including smallholders, pig keepers, Forestry Commission, Service Departments etc., drawing their attention to the Campaign and forwarding information on how to recognise and treat an infestation. Free supplies of warfarin were made available. The Rodent Operator carried out during a four week period a survey of the area, excluding farms, and all Council property and land received courses of treatment. All sewers were test baited and I am pleased to report that no takes were noted.



The following inspections and course of treatments have been carried out:-

	Type of Property				
	Non- Agricultural				Agri-cultural
	Local Auth- ority  (1)	Dwelling Houses (Inc- Council Houses)  (2)	All others (Inc. Business Premises)  (3)	Total of Cols. 1, 2 & 3  (4)	
Number of properties in Local Authority's District	22	2194	615	2831	23
Total number of properties inspected as a result of notification	-	66	13	79	-
Number of such properties found to be infested by:-					
Common rat (Major)	-	-	-	-	-
(Minor)	-	58	11	69	-
Ship rat (Major)	-	-	-	-	-
(Minor)	-	-	-	-	-
House mouse (Major)	-	-	-	-	-
(Minor)	-	11	1	12	-
Total number of properties inspected in the course of survey under the Act	22	2194	615	2831	23
Number of such properties found to be infested by :-					
Common rat (Major)	-	-	-	-	-
(Minor)	9	92	33	134	4
Ship rat (Major)	-	-	-	-	-
(Minor)	-	-	-	-	-
House mouse (Major)	-	-	-	-	-
(Minor)	-	8	-	8	-



	Type of Property				
	Non-Agricultural				Agri- cultur- al
	Local Auth- ority  (1)	Dwelling Houses(Inc. Council Houses)  (2)	All others (Inc. Business Premises)  (3)	Totals of Cols. 1, 2 & 3  (4)	
Number of infested properties treated by the L. A.	9	169	45	223	-
Number of notices served under Section 4 of the Act.					
(a) Treatment	-	-	3	3	-
(b) Structural Work (i. e. Proofing)	-	-	-	-	-
Number of cases in which default action was taken following the issue of a notice under Section 4 of the Act.	-	-	-	-	-
Any other points of interest	Test baiting of sewers was carried out and 245 manholes were baited out of a total of approximately 500 manholes, No baits were taken.				

Note: The above figures in each case relate to the number of properties inspected and not to the number of inspections, infestations or treatments at each property.

1963 was a bad year for wasps and the Operator dealt with 33 nests during the summer. He also carried out any disinfestations required and treated the roof spaces of eighteen houses against cluster flies.

## SUPERVISION OF FOOD SUPPLIES AND PREMISES

### (a) Milk Distribution

There were six registered retail distributors of milk in the District and all milk is retailed by them as received, i. e. , in sealed bottles or containers from dairies outside the District. No milk is bottled in the Borough. All Distributors have been kept under routine observation and their premises have been suitable for the reception and storage of bottled milk pending distribution. Some minor infringements of the Regulations occurred during the year, which were dealt with verbally.

(b) Inspection of Meat and Other Foods

A considerable quantity of food was examined in the shops which resulted in the following list of other foods being condemned and destroyed as unfit for human consumption.

Tomato Puree	.. .. .	473 x 5 kilo cans (5321 lbs.)
Canned meat	.. .. .	39 lbs.
Vegetables	.. .. .	136 tins
Fruit	.. .. .	119 tins
Meat	.. .. .	32 tins
Evaporated Milk	.. .. .	29 tins
Fish	.. .. .	15 tins
Milk Puddings	.. .. .	5 tins
Frozen Chickens	.. .. .	6
Puff Pastry (frozen)	.. .. .	12 packets
Frozen Peas	.. .. .	1 packet
Crumpets	.. .. .	82 packets
Eclairs	.. .. .	7 packets

Disposal was carried out under supervision at the Corporation tip.

Letters were written to three manufacturing firms concerning extraneous matter found in their products. The firms concerned carried out investigations at their factories and ensured, as far as possible, that such material should not gain access to their product again. No formal action was taken.

A request was received for a "Certificate of Health" in respect of ten tons of unpasteurised Frozen Whole Egg stored at the local Cold Store, prior to its being exported to Switzerland. Representative samples of the different batches were taken and submitted to the Laboratory for bacteriological examination. Two batches were found to contain *Salmonella pullorum* and *Salmonella typhimurium*. It was agreed with the exporters that the egg be pasteurised and, with the close co-operation of the Health Department of Gipping R.D.C., being the District to which the egg was removed for treatment, it was kept under strict surveillance until properly dealt with. Further bacteriological examination of the egg after pasteurisation proved it to be safe and it was released for human consumption.

(c) Meat Inspection

The two licenced private slaughterhouses continued to be used by three butchers during the year. The remaining six butchers in the town "import" carcase meat from outside the district for their retail businesses.

The number of animals slaughtered during 1963 was very much the same as the number killed during 1962 and, at this stage, it would appear that more carcase meat was "bought off the hook" to supply the increased population. However, the frequency of slaughtering in small quantities necessitated 367 visits to the slaughterhouses to maintain a 1.00% post-mortem inspection service, which entailed working overtime on 41 Sunday mornings, in the evenings and some Saturday afternoons.



It is felt that 100% inspection could, with co-operation from the trade, be achieved without regular overtime work, particularly at weekends. In the absence of this co-operation - and from information obtained from other districts, it would seem that in many cases co-operation will never be forthcoming - meat inspectors having to do unnecessary overtime feel that the local authorities should continue to ask the Government for power to control days and times of slaughtering without which, 100% meat inspection may never be possible in many districts.

The Meat Inspection Regulations, 1963, came into operation on 1st. October, 1963, and laid down more stringent methods of inspection. The reasons for rejection of carcasses parts of carcasses, blood and offal for human consumption now have the backing of the law. The Regulations require that all meat must be inspected before it leaves the slaughterhouse and, if found to be fit and free from disease, must be marked with a special stamp. For the first time, local authorities were permitted to charge for inspection service and the Council agreed, in common with other neighbouring authorities, to apply the maximum rates laid down.

The general quality of the animals slaughtered was good. The total weight of meat and offal condemned and destroyed as unfit for human consumption was as follows :-

All diseases except Tuberculosis and Cysticerci		Tuberculosis Only	
Offal	Meat	Offal	Meat
549 lbs. (363)	44 lbs. (26)	8 lbs. (50)	94 lbs. (122)

Figures in brackets relate to 1962.

Five carcasses of beef found to be infested with Cysticercus Bovis in the slaughterhouses at Bury St. Edmunds were sent to the Cold Store in Thetford for refrigeration. These carcasses were stamped and released for human consumption after being refrigerated for the required period of time.

The incidence of disease is little different to 1962 and it will be noted that not one bovine animal showed any tubercular lesions. Although thorough examination of every carcase has been carried out, no cases of cysticercus bovis have been detected amongst the bovine animals slaughtered.



The following table gives details of animals killed, together with information regarding numbers and percentages affected by disease:-

	Cattle excluding Cows	Cows	Calves	Sheep and Lambs	Pigs	Horses
Number killed	309 (309)	-	-	271 ( 297)	554 (563)	-
Number inspected	309 (309)	-	-	271 (297)	554 (563)	-
<u>All Diseases except Tuberculosis and Cysticerci</u> Whole carcasses condemned	-	-	-	-	-	-
Carcasses of which some part or organ was condemned	33 (29)	-	-	3 (6)	38 (22)	-
Percentage of the number in- spected affected with disease other than tuberculosis and cysticerci	10.68% (9.45%)	-	-	1.11% (2.02%)	6.86% (3.91%)	-
<u>Tuberculosis only</u> Whole carcasses condemned	-	-	-	-	-	-
Carcasses of which some part or organ was condemned	-	-	-	-	10 (13)	-
Percentage of the number in- spected affected with tuber- culosis	-	-	-	-	1.8% (2.31%)	-
<u>Cysticercosis</u> Carcasses of which some part or organ was condemned	-	-	-	-	-	-
Carcasses submitted to treat- ment by refrigeration	-	-	-	-	-	-
Generalised and totally condemned	-	-	-	-	-	-

(Figures in brackets relate to 1962).

(d) Deadweight Certification of Pigs for Subsidy

Hubbard's slaughterhouse was one of the very few remaining private slaughterhouses approved as a Deadweight Certification Centre by the Ministry of Agriculture, Fisheries and Food, where pigs only could be presented by producers and certified as eligible for the guarantee payments under the Fatstock Guarantee Scheme. As had been expected for some time, the Ministry intimated at the end of December that consideration was being given to the withdrawal of certification facilities from the Thetford centre, because insufficient use was being made of the facilities provided. However, your Public Health Inspector continued as the appointed Certifying Officer and 377 pigs were weighed and certified as eligible for the guarantee payment under the scheme.

(e) Slaughter of Animals Acts - Slaughterman's Licences

Eight licences were issued to suitable persons authorising them to slaughter animals by approved methods of stunning. One of these was issued only for killing pigs and none authorised the holder to slaughter horses.

(f) Food Premises

Routine inspections were made at all the food businesses in the district, when advice was given and, where necessary, informal notices served requesting repairs or alterations to keep the premises up to the standards required by the Food and Drugs Act, 1955, and the Hygiene Regulations; these infringements were dealt with promptly without need for formal action.

In addition to the personal approach on the subject of clean food, abstracts of the Hygiene Regulations and Clean Food poster propaganda were distributed for display where staff are employed behind the scenes.

Observation has also been kept on the many mobile shops operating in the District and in the case of two ice-cream vans and one fish and chip van, it was found necessary to write to the owners requesting improvements in personal washing facilities.

The number of food premises registered under Section 16 of the Food and Drugs Act, 1955, is as follows:-

- |  |         |    |
|--|---------|----|
| 1. For the purpose of "the preparation of fish by any process of cooking, for sale for human consumption"  | .. .. . | 3  |
| 2. For the purpose of "the sale of Ice-Cream"  | .. .. . | 20 |
| 3. For the purpose of "the preparation or manufacture of sausages or potted, pressed, pickled or preserved food intended for sale for human consumption including the preparation of meat by any process of cooking" | .. .. . | 9  |



The number of food premises in the area by type of business is as follows:-

<u>Type of business</u>	No.
Cafes, Restaurants .. .. .	15
Greengrocers and Grocers .. .. .	29
Confectionery, Cakes, etc. .. .. .	20
Public Houses .. .. .	16
Fish Shops (including fried fish and chips) .. .. .	6
Bakehouses .. .. .	3
General Stores .. .. .	18
Butchers Shops .. .. .	9
Sale of Ice - Cream .. .. .	20

(g) Ice - Cream

There are 20 premises registered in accordance with the Section 16 of the Food and Drugs Act, 1955, for the sale only of Ice-Cream. In all cases, the Ice-Cream is sold as wrapped.

30 samples were submitted to the Public Health Laboratory for bacteriological examination and the reports received showed all the samples to be Grade I (excellent).

FACTORIES ACT, 1961  
Part 1 of the Act

1. Inspections for purposes of provisions as to health (including the inspections made by Public Health Inspectors).

Premises	Number on Register	Number of		
		Inspections	Written notices	Occupiers prosecuted
(i.) Factories in which Sections 1, 2, 3, 4, and 6 are to be enforced by Local Authorities.	-	-	-	-
(ii) Factories not included in (i) in which Section 7 is enforced by the Local Authority	71	93*	1	-
(iii) Other premises in which Section 7 is enforced by the Local Authority. (Excluding out-workers premises)	41	58*	12	-
Total	115	151*	13	-



\*The figures given here are much less than the actual number of visits because those factories, which are also food premises, received many visits during the year, although they were not made primarily under the Factories Act. For example, the two slaughter-houses are visited at least six times a week, the Canning Factory once per week, whilst frequent visits are made to butchers' shops, which are factories by reason of power being used for driving sausage machines.

All factories are also subject to inspection by H.M. Factory Inspectorate and, if they find any infringements of the Act which are enforceable by the Local Authority, they refer the matter to the Council for appropriate action. One such defect was notified which related to a broken W.C. seat.

### FACTORIES ACT

#### Part 1 of the Act (continued)

Particulars	Number of cases in which defects were found		Referred		Number of cases in which prosecutions were instituted
	Found Remedied		To H. M. Inspector	By H. M. Inspector	
Want of cleanliness	4	4	-	-	-
Overcrowding	-	-	-	-	-
Unreasonable temperature	-	-	-	-	-
Inadequate ventilation	-	-	-	-	-
Ineffective drainage of floors	-	-	-	-	-
Sanitary Conveniences					
(a) Insufficient	-	-	-	-	-
(b) Unsuitable or defective	9	9	-	1	-
(c) For separate sexes	-	-	-	-	-
Other offences against the Act (not including offences relating to Outwork)	-	-	-	-	-
Total	13	13	-	1	-

Part VIII of the Act

Outwork

(Sections 110 and 111)

Nature of Work	No. of out-workers in August list required by Sect. 110 (1) (c)	No. of cases of default in sending lists to the Council	No. of prosecutions for failure to supply lists	No. of instances of work in unwholesome premises	Notices served	Prosecutions
Wearing apparel making etc.	1	-	-	-	-	-
Cleaning and washing	-	-	-	-	-	-
Total	1	-	-	-	-	-

Clean Air Act, 1956

The development of an industrial site under the Town Expansion Scheme has brought problems with it in connection with the Clean Air Act. Under the Act, notification is required to be given to the Local Authority of the installation of any new furnace, boiler or incinerator plant. Such plant has to be capable of burning smokelessly whilst operating efficiently and smoke is defined as including soot, ash, grit and gritty particles emitted in smoke. One of the major problems to be dealt with is the dispersal of the products of combustion and, in particular, the sulphur dioxide content. During 1963, the Ministry of Housing and Local Government issued a Memorandum under the Act on chimney heights explaining a relatively simple method of calculating the approximate height commonly desirable in normal circumstances. The method of calculation is based on the amount of flue gases which the chimney is expected to emit as a function of the maximum rate of emission of sulphur dioxide and also takes into account the height of the building and other nearby buildings or objects.

It has been found, in general, that the proposed chimney heights, as submitted, were about half the height required under the Memorandum and architects have been loth to plan tall chimneys because the visual amenities would be impaired. It is felt that the amenities would be more greatly impaired from the health point of view, if stacks were not sufficiently high to disperse the sulphurous gases. However, these points have been accepted generally and agreement amicably reached on the final chimney heights.



## Other Matters

### (i) Agriculture (Safety, Health and Welfare) Provisions Act, 1956

Visits of inspection have been made at farms to ensure that employees are provided with satisfactory sanitary accommodation, but I regret that such visits have not been frequent, owing to pressure of other duties. In general, the farms are small and employees are able to use the accommodation at the farm buildings.

### (ii) Shops Act, 1950

Routine inspections have been made to ensure that shops comply with the legislation relating to suitable ventilation, lighting, seating, welfare, sanitary accommodation, washing facilities, etc.

The Local Authority being a Borough Council are also responsible for the Shops Hours of Closing provisions and your Public Health Inspector is the appointed Shops Act Inspector for this purpose. This entails various visits out of normal working hours, during the evening up to 10 p.m. and also Sunday surveys of the area.

### (iii) Pet Animals Act, 1951

One licence was granted under this Act during the year.

### (iv) Diseases of Animals (Waste Foods) Order, 1957.

The provisions of the Order state that proper and adequate plant and equipment, together with separate storage for both "boiled" and "unboiled" waste foods or swill shall be provided and that the person responsible for the operation of such plant must hold a licence. The Local Authority is empowered to grant such licence only if it is satisfied that the plant is adequate to ensure that the waste foods can be boiled in accordance with the requirement of the Order.

The Borough Council is the responsible Local Authority for licensing swill boiling plants and storage facilities. 15 such licences were continued in 1963.

In conclusion, I would like to express appreciation and thanks to Members of the Council for their continued support and consideration and to the Medical Officer and all other members of the staff for their assistance and co-operation.

I have the honour to be, Mr. Chairman, Ladies and Gentlemen,  
Your obedient Servant,

R. C. R. Robinson,

Public Health Inspector.



## LINCOLNE SUTTON AND WOOD

Telephone: 24555  
Cert. No. P. 624  
Lab. No. 5621/W

Clarence House,  
6, Clarence Road,  
NORWICH.

22nd. March 1963

### CERTIFICATE OF ANALYSIS OF WATER

Sample received 6th. March, 1963 from Thetford Borough Council.

Marked: Public Supply, Rising Main, Barnham Cross Headworks.

Appearance when received: clear.

Nature of Deposit: nil.

Colour: nil.

Odour: nil.

Reaction: faintly alkaline. pH: 7.6.

Taste: satisfactory.

### RESULTS OF CHEMICAL ANALYSIS IN PARTS PER MILLION

Ammoniacal nitrogen: negligible trace.

Hardness as  $\text{CaCO}_3$ :

Albuminoid nitrogen: 0.01.

Total: 236.

Nitrate nitrogen: 1.5.

Carbonate (temporary): 180.

Nitrite nitrogen: nil.

Non-carbonate (permanent): 55.

Chlorine as chlorides: 14.

Alkalinity as  $\text{CaCO}_3$ : 180

Oxygen absorbed (4 hr.  $27^\circ\text{C}.$ ): 0.05

Free carbon dioxide: 19.

Fluorine: 0.05.

Total solids (at  $180^\circ\text{C}.$ ): 255.

Iron (total): 0.07.

Metals in solution: lead and zinc absent.  
copper v. faint trace.

### OPINION

This water is of a very good organic quality and there is no evidence of pollution in the chemical analysis. Its chemical characteristics are slightly different from those of the Mundford Road supply, but the differences are without significance in practice. The total hardness is about  $16^\circ$  Clark, all but  $4^\circ$  of which are temporary, and metals are absent except for a trace of iron. The fluorine content of this water is negligible. In our opinion, this water is fit for drinking and general purposes.

for Lincolne, Sutton & Wood Ltd.,

Signed Eric C. Wood.

## LINCOLNE SUTTON AND WOOD

Telephone 24555  
Cert. No. P.625  
Lab. No. 5622/W

Clarence House,  
6, Clarence Road,  
NORWICH.

22nd. March 1963

### CERTIFICATE OF ANALYSIS OF WATER

Sample received: 6th. March, 1963 from Thetford Borough Council.

Marked: Public Supply, Mundford Road Headworks.

Appearance when received: clear.

Nature of Deposit: nil.

Colour: nil.

Odour: nil.

Reaction: neutral. pH: 7.2.

Taste: satisfactory.

### RESULTS OF CHEMICAL ANALYSIS IN PARTS PER MILLION

Ammoniacal nitrogen: 0.01

Hardness as  $\text{CaCO}_3$ :

Albuminoid nitrogen: 0.01.

Total: 250

Nitrate nitrogen: 8.5

Carbonate (temporary): 195

Nitrite nitrogen: nil.

Non-carbonate (permanent): 55

Chlorine as chlorides: 22.

Alkalinity as  $\text{CaCO}_3$ : 195.

Oxygen absorbed (4 hr.  $27^\circ\text{C}.$ ): 0.1.

Free carbon dioxide: 27.

Fluorine: 0.05.

Total solids (at  $180^\circ\text{C}.$ ): 330.

Iron (total): 0.13.

Metals in solution: lead and zinc absent  
copper v. faint trace

### OPINION

This water is of very good organic quality and the chemical analysis as a whole shows no sign of pollution. The total hardness approximates to  $18^\circ$  Clark, all but  $4^\circ$  of which is temporary. A trace of iron is present, but is insufficient to cause any inconvenience. The fluorine content of this water is negligible. In our opinion this water is fit for drinking and general purposes.

for Lincolne, Sutton & Wood Ltd.,

Signed Eric C. Wood.



LINCOLNE SUTTON AND WOOD

Telephone: 24555  
Cert. No. P. 1080  
Lab. No. 6245/W

Clarence House,  
6, Clarence Road,  
NORWICH.  
15th. July, 1963.

CERTIFICATE OF ANALYSIS OF WATER

Sample received: 18th. June, 1963.

Marked: Borehole, Fisons Bungalows, Two Mile Bottom, Thetford.

Appearance when received: clear.

Nature of Deposit: nil.

Colour: nil.

Odour: nil.

Reaction: faintly alkaline. pH: 7.4

Taste: satisfactory.

RESULTS OF CHEMICAL ANALYSIS IN PARTS PER MILLION

Ammoniacal nitrogen: negligible trace.

Hardness as  $\text{CaCO}_3$ :

Albuminoid nitrogen: negligible trace.

Total: 230

Nitrate nitrogen: 7.5

Carbonate (temporary): 200

Nitrite nitrogen: nil.

Non-carbonate (permanent): 30

Chlorine as chlorides: 16

Alkalinity as  $\text{CaCO}_3$ : 200.

Oxygen absorbed (4 hr.  $27^\circ\text{C}.$ ): 0.10

Free carbon dioxide: 19.

Total solids (at  $180^\circ\text{C}.$ ): 325.

Iron (total): nil.

Lead and copper: nil.

Metals in solution(zinc): 1.

OPINION

The organic quality of this water is very good and there is no chemical evidence of pollution. The total hardness amounts to approximately  $16^\circ$  Clark, almost all of which is temporary. The reaction of the water is on the alkaline side of neutrality, as is desirable, and metallic contamination was absent apart from a negligible trace of zinc. In our opinion, this water is suitable for drinking and general purposes.

for Lincolne, Sutton & Wood Ltd. ,

Signed Eric C. Wood.



## LINCOLNE SUTTON AND WOOD

Telephone: 24555  
Cert. No. P.1122  
Lab. No. 6334/W

Clarence House,  
6, Clarence Road,  
NORWICH.  
24th. July, 1963.

### CERTIFICATE OF ANALYSIS OF WATER

Sample received: 3rd. July, 1963 from Thetford Borough Council.  
Marked: New Borehole, Two Mile Bottom, Thetford (1st. sample).  
Appearance when received: clear with white deposit.  
Nature of Deposit: chalk.  
Colour: clear.  
Reaction: neutral. pH: 7.1.

Odour: nil.  
Taste: satisfactory.

### RESULTS OF CHEMICAL ANALYSIS IN PARTS PER MILLION

Ammoniacal nitrogen: 0.02.  
Albuminoid nitrogen: 0.01.  
Nitrate nitrogen: 6.0.  
Nitrite nitrogen: nil.  
Chlorine as chlorides: 14.  
Oxygen absorbed (4hr. 27° C.): nil.

Hardness as CaCO<sub>3</sub>:  
Total: 190  
Carbonate (temporary): 170  
Non-carbonate (permanent): 20  
Alkalinity as CaCO<sub>3</sub>: 170.  
Free carbon dioxide: 30.  
Total solids (at 180° C.): 290.  
Iron (total): 0.09.  
Metals in solution: absent.

### BACTERIOLOGICAL RESULTS

Number of colonies developing per ml. in 48 hours at 37° C.: Numerous.  
Presumptive coliform organisms - Probable Number per 100ml.: nil.

### OPINION

This water is of very good organic quality and there is no chemical evidence of pollution. The bacteriological condition of the water is very satisfactory as regards the absence of coliform organisms. There was a very high "count" after 48 hours but this is not unusual in a new unchlorinated water. In our opinion, this water is free from any significant pollution. The total hardness of the water is about 13° Clark, this being below the average for East Anglian waters derived from the chalk. Almost the whole of this is temporary. The reaction of the water is almost exactly neutral and this water would not be expected to have any serious corrosive action on metals, though it might have a slight solvent action at first on new copper or zinc.

Metals are absent from the water except for a trace of iron, too small to give rise to a deposit or to cause any inconvenience. In our opinion, this water is suitable for drinking purposes.

for Lincolne Sutton & Wood, Ltd.,

Signed Eric C. Wood.

## LINCOLNE SUTTON AND WOOD

Telephone: 24555  
Cert. No. P. 1153  
Lab. No. 6357/W

Clarence House,  
6, Clarence Road,  
NORWICH.  
1st. August, 1963.

### CERTIFICATE OF ANALYSIS OF WATER

Sample received: 10th. July, 1963 from Thetford Borough Council.  
Marked: New Bore Hole, Two Mile Bottom, Thetford (2nd. sample).  
Appearance when received: clear.  
Nature of Deposit: nil.  
Colour: nil.  
Reaction: faintly alkaline. pH: 7.5.

Odour: nil.  
Taste: satisfactory.

### RESULTS OF CHEMICAL ANALYSIS IN PARTS PER MILLION

Ammoniacal nitrogen: negligible trace.  
Albuminoid nitrogen: negligible trace.  
Nitrate nitrogen: 6.0.  
Nitrite nitrogen: nil.  
Chlorine as chlorides: 16  
Oxygen absorbed ( 4 hr. 27° C.): 0.15.  
Sulphate as SO<sub>4</sub>: 10  
Silica as SiO<sub>2</sub>: 9  
Fluorine as F: 0.10.  
Calcium as Ca: 78  
Sodium as Na: 20  
Chloride as Cl: 16

Hardness as CaCO<sub>3</sub>:  
Total: 220  
Carbonate (temporary): 195  
Non-carbonate (permanent): 25  
Alkalinity as CaCO<sub>3</sub> 195  
Free carbon dioxide: 15  
Total solids (at 180° C.): 300  
Iron (total): 0.02  
Metals in solution: absent.  
Magnesium As Mg: 6.  
Carbonate as CO<sub>3</sub>: 118  
Nitrate as NO<sub>3</sub>: 26

### BACTERIOLOGICAL RESULTS

Number of colonies developing per ml. in 48 hours at 37° C.: 1.  
Presumptive coliform organisms - Probable Number per 100 ml.: nil.

### OPINION

The organic quality of this water is very good and its bacteriological condition is excellent. As compared with the previous analysis (our Cert. No.P.1122), there are only insignificant differences in the analytical characteristics. The total hardness is a little higher and the iron content is lower. A detailed mineral analysis has been carried out on this occasion, which shows that, as is usual for East Anglian waters derived from the chalk, the hardness is due almost entirely to the calcium salts, the magnesium content being relatively very low. The fluorine content is negligible.

The remarks made on our previous certificate as regards the properties of the water apply equally to the present sample and, in our opinion, this water is suitable for drinking and general purposes.

for Lincolne, Sutton & Wood Ltd.,

Signed Eric C. Wood.



## LINCOLNE SUTTON AND WOOD

Telephone: 24555  
Cert. No. P. 1316  
Lab. No. 6614/W

Clarence House,  
6, Clarence Road,  
NORWICH.  
9th. September, 1963.

### CERTIFICATE OF ANALYSIS OF WATER

Sample received: 28th. August, 1963 from Thetford Borough Council.

Marked: TBC/63/5C Public Supply off Rising Main at Barnham Cross Headworks.

Appearance when received: clear.

Nature of Deposits: nil.

Colour: nil.

Odour: nil.

Reaction: faintly alkaline. pH: 7.7.

Taste: satisfactory.

### RESULTS OF CHEMICAL ANALYSIS IN PARTS PER MILLION.

Ammoniacal nitrogen: negligible trace.

Hardness as  $\text{CaCO}_3$ :

Albuminoid nitrogen: 0.01.

Total: 205.

Nitrate nitrogen: 0.5.

Carbonate (temporary): 170.

Nitrite nitrogen: nil.

Non-carbonate (permanent): 35.

Chlorine as chlorides: 10.

Alkalinity as  $\text{CaCO}_3$ : 170.

Oxygen absorbed (4 hr.  $27^\circ\text{C}$ .): neg. trace.

Free carbon dioxide: 15.

Total solids (at  $180^\circ\text{C}$ .): 290.

Iron (total): 0.07.

Metals in solution: Absent.

### OPINION

The organic quality of this water is very good and there is no sign of pollution. The total hardness is about  $14^\circ$  Clark, most of which is temporary, and the reaction of the water is on the alkaline side of neutrality so that corrosive action on metals is not to be feared. In our opinion, this water is very suitable for use as a public supply.

for Lincolne, Sutton & Wood Ltd.,

Signed Eric C. Wood.



## LINCOLNE SUTTON AND WOOD

Telephone: 24555  
Cert. No. P. 1317.  
Lab. No. 6615/W

Clarence House,  
6, Clarence Road,  
NORWICH.

### CERTIFICATE OF ANALYSIS OF WATER

Sample received: 28th. August, 1963 from Thetford Borough Council.

Marked: TBC/63/6C Mundford Road Headworks.

Appearance when received: clear.

Nature of Deposit: nil.

Colour: nil.

Odour: nil.

Reaction: faintly alkaline, pH: 7.7.

Taste: satisfactory.

### RESULTS OF CHEMICAL ANALYSIS IN PARTS PER MILLION

Ammoniacal nitrogen: negligible trace.

Hardness as  $\text{CaCO}_3$ :

Albuminoid nitrogen: 0.01.

Total: 240.

Nitrate nitrogen: 6.

Carbonate (temporary): 190.

Nitrite nitrogen: nil.

Non-carbonate (permanent): 50.

Chlorine as chlorides: 20.

Alkalinity as  $\text{CaCO}_3$ : 190.

Oxygen absorbed (4 hr.  $27^\circ\text{C}.$ ): 0.10.

Free carbon dioxide: 22.

Total solids (at  $180^\circ\text{C}.$ ): 350.

Iron (total): 0.05.

Metals in solution: Absent.

### OPINION

This water is of very good organic quality and there is no sign of pollution. The total hardness is about  $17^\circ$  Clark, all but  $4^\circ$  of which is temporary. The alkaline reaction of the water renders negligible the risk of corrosive action on metals and, in our opinion, this water is very suitable for use as a public supply.

for Lincolne, Sutton & Wood Ltd.,

signed Eric C. Wood.

# BACTERIOLOGICAL EXAMINATION OF WATER

Date	Source	Probable numbers per 100ml.	
		Coliform bacilli	Bact. coli. (type 1)
9. 1. 63	Tap Fulmerston Road (Public Supply)	0	0
9. 1. 63	Tap, King Street (Public Supply)	0	0
31. 1. 63	Emergency supply trailer (Public Supply)	0	0
6. 2. 63	Emergency supply tank (Public Supply)	0	0
27. 2. 63	Tap, Redgate (Public Supply)	0	0
27. 2. 63	Tap, Nunnery Place (Public Supply)	0	0
10. 4. 63	Tap, Guildhall Street (Public Supply)	0	0
17. 4. 63	Tap, Fulmerston Road (Public Supply)	0	0
22. 4. 63	Olleys Farm, Emergency Supply (Private Supply)	0	0
22. 4. 63	Well, Olleys Farm (Private Supply)	0	0
8. 5. 63	Tap, Castle Street (Public Supply)	0	0
8. 5. 63	Tap, Guildhall Street (Public Supply)	0	0
7. 6. 63	Tap, Park View (Public Supply)	0	0
18. 6. 63	Well, Railway Bungalows, Two Mile Bottom (Private Supply)	0	0
18. 6. 63	Well, Forestry Houses, Two Mile Bottom (Private Supply)	0	0
18. 6. 63	Well, Railway Cottages, Two Mile Bottom (Private Supply)	0	0
18. 6. 63	Bore, Fisons Bungalows, Two Mile Bottom (Private Supply)	0	0
10. 7. 63	New Borehole, Two Mile Bottom (raw water for future public supply)	0	0
28. 8. 63	Headworks, Barnham Common (Public Supply - raw water)	0	0
28. 8. 63	Headworks, Mundford Road (Public Supply - raw water)	0	0
17.10. 63	Tap, Kimms Belt (Public Supply)	0	0
26.11. 63	Tap, King Street (Public Supply)	0	0
26.11. 63	Tap, Fulmerston Road (Public Supply)	0	0









